



# VELOCI PRO-R/PRO/RS/RS-M ELECTRONIC SPEED CONTROLLER

Product no. #8020 / 8021

#8023 / 8050 / 8051

## Introduction

Congratulations on choosing one of the best electronic speed controllers. We have phased in the latest digital technology in your Veloci speed controller for you to get an excellent performance. Please see the set-up procedure carefully for your installation.

## Features

- Using the latest MOS FETs
- Adjustable to Racing Mode, reverse switch off
- Over load protection and safety of full warranty
- Compact size for fits anywhere
- Plug in and drive
- With Real-Time-Braking

## Specifications

Product Name	Veloci Pro-R	Veloci Pro	Veloci Pro-R	Veloci RS	Veloci RS-M
Product No.	8020	8021	8023	8050	8051
Voltage range	4.8-8.4V	4.8-8.4V	4.8-8.4V	4.8-8.4V	4.8-8.4V
Internal resistance	0.0175Ω	0.0175Ω	0.0175Ω	0.004Ω	0.004Ω
Momentary Load (1 sec)	120A	120A	120A	400A	400A
Brief Load (30 sec)	70A	70A	70A	230A	230A
Continuous Load (5 min)	50A	50A	50A	170A	170A
BEC Voltage	5V	5V	5V	5V	5V
BEC Current	1A	1A	1A	1.5A	1.5A
Frequency	2 KHz	2 KHz	2 KHz	2 KHz	2 KHz
Reverse	YES	NO	YES	YES	YES
Reverse limit	YES(8")	NO	NO	YES(8")	NO
Motor limit	23+turns			17+turns	
Over Load Protection	YES	YES	YES	YES	YES
Setup Procedure	Digital / Push button				
Mode Switch (reverse/brake)	YES	NO	YES	YES	YES
Weight	31g	31g	31g	71g	71g
Dimension	26x25.6x15.6mm			49x36x28mm	
Rec. Vehicle	car		Boat	car	*Boat

\*Note: Veloci RS-M is especially designed for thunder tiger electric powered submarine

## Precaution

- Before starting your installation of the electronic speed controller, read the instruction manual carefully.
- Make sure that the suppressor capacitors have been soldered to the motor.
- Install the speed control in a position that allows easy to access all connectors and the set-up button.
- Find a secure location for the speed control since the speed control is not water resistant.
- Do not arrange the speed controller, power cables, receiver or receiver aerial too close together. It may cause some interference between the power system components and receiver aerial.
- If the aerial is too long, cut it down to a suitable length suitable.
- Please also refer the instructions that is supplied with your radio control system.

## Warning

- Always unplug the battery after use. Do not leave your vehicle unattended with the battery plugged in.
- Always make sure the switch is off unless under adjustment.
- Never touch to water without any protection. Anti-water protection is strongly recommended.
- Never run the motor by connecting a separate battery when the motor is already connected to the speed controller.
- Never cut off the original plug, as this invalidates the warrantee.
- Avoid incorrect connections and reverse polarity or it will cause damage to the unit.
- Do not let the FETs touch any metal objects or any bare wires.
- Make sure there is ample supply of air to allow for cooling.

## Set-up Procedure

1. Leave the throttle in neutral.
2. Connect the speed control to the battery.
3. Power the speed control on .
4. Press the set-up button at least 3 seconds with the plastic screwdriver supplied.
5. The set-up LED now flashes red/green to confirm that the unit is in set-up mode.
6. Leave the throttle in neutral and press the set-up button again.
7. The neutral setting is now stored, and the set-up LED lights green.
8. Move the throttle to full-throttle and press the set-up button again.
9. The full-throttle setting is now stored, and the set-up LED lights red.
10. Move the transmitter stick to full-brake/reverse and press the set-up button again.
11. The full brake/reverse setting is now stored, and the set-up red/green LED lights simultaneously 3 times.
12. Then the red/green LED stays on.

Now, your Veloci speed controller is set-up completely and is ready to run.

## HELPFUL HINT

If you make a mistake during the set-up procedure, switch the unit off for about 5 seconds and start again from the first step.

## Special Feature

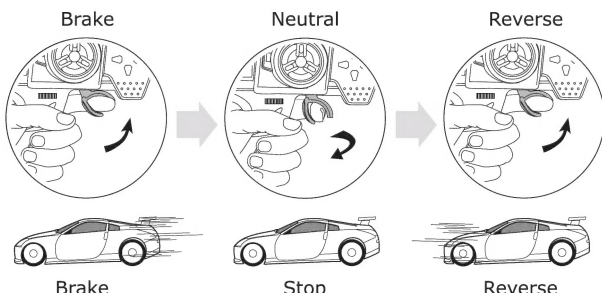
The VELOCI digital speed controls feature a new overheat protection function. This function protects the VELOCI against overheating during operation. If the speed control's temperature exceeds safe levels, the motor function will be temporarily switched off. However, full steering function is still maintained during this period. When the overheat protection mode is activated, the setup LED will flash GREEN and RED simultaneously. Simply wait a few minutes to allow the speed control to cool down to normal operating temperatures and full function will be restored.

### Overheating may be caused by the following:

1. Driving in reverse in excess of 8 seconds.
2. The motor used has less than factory limit of turns.
3. Gear mesh is too tight or other drivetrain problems.
4. Inappropriate gear ratios.
5. Repeatedly going from full reverse to full forward instantaneously.
6. Using full brakes too often.
7. Not enough ventilation to the speed control.

## Reverse Mode (8050 only)

This ESC program has been set in the reverse mode of "2-stage reverse with safe brake". When the car is in a running mode, shift the throttle into reverse, you will still have fully proportional braking. Reverse will only engage after you shift throttle to reverse again beginning with the vehicle comes to a complete stop.



## Special Functions

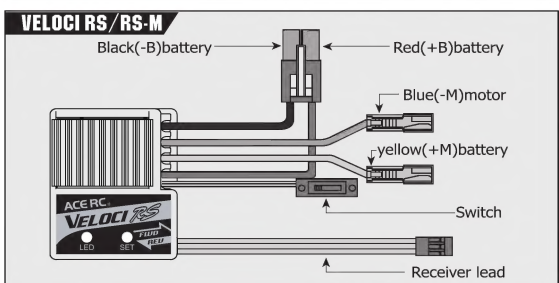
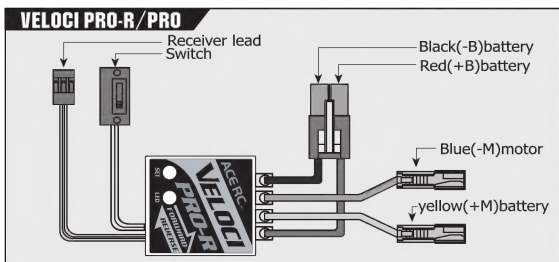
The Veloci RS can be programmed to disable Reverse for competition driving and to disable the LiPo Low Voltage Cutoff when using NiMH batteries.

**Disable Reverse** - With the ESC connected to the battery, press and hold the SET button and switch the ESC on. Reverse will now be disabled. Follow the same procedure to enable reverse. (Factory Default: Reverse mode)

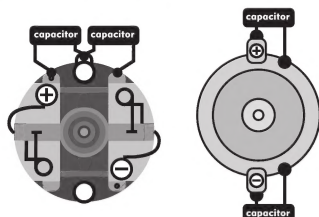
**Disable Low Voltage Cutoff** - When the ESC is on, press the SET button twice. The LED will flash green 5 times to indicate that the ESC is in NiMH mode. To return to LiPo mode, press the SET button 2 times and the LED will flash red 5 times to indicate that the ESC is in LiPo mode. (Factory Default: NiMH mode 8050 only)

## Function check

Function	Position	LED status
Forward	Part-load	Bright green
Forward	Full-throttle	Off
Neutral		Dim green & red
Brake/reverse	Part-load	Bright red
Brake/reverse	Full brake/reverse	Off



## Motor Suppression



### CAUTION

- Incorrect polarity will damage your speed control and might cause a fire.
- It may cause a malfunction if the motor is used without suppressor capacitors.
- Do not solder the Schottky diodes in conjunction with a forward/ reverse speed controllers.

\* To update the latest product information and to get the best technical support, please feel free to contact your local hobby shops or Thunder Tiger authorized distributor.

## Service

\* Any service information please contact your local retailer for further detail. Do not send the defective product directly to the Thunder Tiger Corp.

Manufactured by

**THUNDER TIGER CORP.**

<http://www.thundertiger.com>

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